

ABSTRACT OF THE DISCLOSURE

An implant for bridging a gap in a severed spinal cord or nerve and for promoting nerve regeneration has a matrix comprising a biocompatible, biodegradable, polymeric material. The matrix has a proximal end for connection to a first end of severed spinal cord and a distal end for connection to a second end of severed spinal cord. The matrix includes internal guidance channels extending between the proximal end and the distal end to facilitate rejoining of the first end and the second end of the severed spinal cord. A bioactive agent may be dispersed in the matrix, or disposed in the channels, or included within microspheres in the channels. The channels may be arranged such that guidance channels correspond to spinal cord tracts. Alternatively, guidance channels may be spaced apart at the proximal end of the matrix and converge inward toward the axis of the matrix at the distal end.

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